

LISTING OF CLAIMS

- 1 1. (Previously presented) A heterojunction bipolar transistor (HBT),
2 comprising:
3 a collector;
4 an emitter; and
5 a base located between the collector and the emitter, the base including a layer
6 of gallium arsenide antimonide (GaAsSb) less than 49 nanometers (nm) thick and
7 having a doping concentration greater than 6×10^{19} acceptors/cm³.

- 1 2. (Original) The HBT of claim 1, wherein the gallium arsenide antimonide of
2 the base has an arsenic (As) fraction in a range from about 50% to about 51%.

- 1 3. (Original) The HBT of claim 1, wherein the gallium arsenide antimonide of
2 the base has an arsenic (As) fraction in a range from about 50% to about 65%.

- 1 4. (Original) The HBT of claim 1, wherein the gallium arsenide antimonide of
2 the base has an arsenic (As) fraction in a range from about 50% to about 60%.

- 1 5. (Original) The HBT of claim 1, wherein the gallium arsenide antimonide of
2 the base has an arsenic (As) fraction in a range from about 54% to about 56%.

- 1 6. (Original) The HBT of claim 1, wherein the gallium arsenide antimonide of
2 the base has an arsenic (As) fraction of approximately 55%.

- 1 7. (Original) The HBT of claim 1, wherein the base layer of GaAsSb is less
2 than 20 nm thick.

- 1 8. (Original) The HBT of claim 1, wherein the base layer of GaAsSb is
2 strained so that its lattice constant conforms to the lattice constant of the collector and
3 the emitter.

1 9. (Original) The HBT of claim 1, wherein the base layer of GaAsSb is doped
2 with beryllium (Be) at a doping concentration of between approximately 6×10^{19} and
3 4×10^{20} acceptors/cm³.

1 10. (Original) The HBT of claim 1, wherein the base layer of GaAsSb is
2 doped with carbon (C) at a doping concentration of between approximately 6×10^{19} and
3 4×10^{20} acceptors/cm³.

1 11. (Original) The HBT of claim 7, wherein the base layer of GaAsSb is
2 doped with carbon (C) at a doping concentration of between approximately 6×10^{19} and
3 4×10^{20} acceptors/cm³.

1 12. (Previously presented) A method for making a heterojunction bipolar
2 transistor (HBT), the method comprising the steps of:

3 forming a collector;
4 forming an emitter; and

5 forming a base located between the collector and the emitter, the base
6 including a layer of gallium arsenide antimonide (GaAsSb) less than 49 nanometers
7 (nm) thick and having a doping concentration greater than 6×10^{19} acceptors/cm³.

1 13. (Original) The method of claim 12, wherein the base is formed of gallium
2 arsenide antimonide having an arsenic (As) fraction in a range from about 50% to
3 about 51%.

1 14. (Original) The method of claim 12, wherein the base is formed of gallium
2 arsenide antimonide having an arsenic (As) fraction in a range from about 50% to
3 about 65%.

1 15. (Original) The method of claim 12, wherein the base is formed gallium
2 arsenide antimonide having an arsenic (As) fraction in a range from about 50% to
3 about 60%.

1 16. (Original) The method of claim 12, wherein the base is formed of gallium
2 arsenide antimonide having an arsenic (As) fraction in a range from about 54% to
3 about 56%.

1 17. (Original) The method of claim 12, wherein the base is formed of gallium
2 arsenide antimonide having an arsenic (As) fraction of approximately 55%.

1 18. (Original) The method of claim 12, wherein the base layer of GaAsSb is
2 less than 20 nm thick.

1 19. (Original) The method of claim 12, further comprising the step of straining
2 the base layer of GaAsSb so that its lattice constant conforms to the lattice constant of
3 the collector and the emitter.

1 20. (Original) The method of claim 12, further comprising the step of doping
2 the base layer of GaAsSb with beryllium (Be) at a doping concentration of between
3 approximately 6×10^{19} and 4×10^{20} acceptors/cm³.

1 21. (Original) The method of claim 12, further comprising the step of doping
2 the base layer of GaAsSb with carbon (C) at a doping concentration of between
3 approximately 6×10^{19} and 4×10^{20} acceptors/cm³.

1 22. (Canceled)

1 23. (Canceled)

1 24. (Canceled)

1 25. (Canceled)